

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A communication apparatus comprising:
 - a first conductive layer;
 - a second conductive layer; and
 - a plurality of communication elements that are connected to the first conductive layer and the second conductive layer, wherein
 - a first communication element of the plurality of communication elements, initiating transmission to a second communication element of the plurality of communication elements, is operative to control a voltage between the first conductive layer and the second conductive layer, letting the second communication element to acknowledge a change in the voltage propagated around the first communication element as a signal,
 - wherein the second communication element is operative to monitor the signal from the first communication element and acknowledge the change in the voltage between the first conductive layer and the second conductive layer as the signal,
 - wherein the second communication element is assigned an ID identifying the element, and the signal includes an ID identifying a recipient communication element of the plurality of communication elements which is subsequently to receive the signal, and
 - wherein the recipient communication element determines whether a signal is destined to the element by referring to the ID included in the signal, and

wherein the plurality of communication elements can be placed for communication without individual conductive wires.

2. (previously presented): A communication apparatus according to claim 1, where in the first communication element is operative to generate, as the signal, the change in the voltage between the first conductive layer and the second conductive layer propagated concentrically around the first communication element.

3. (previously presented): The communication apparatus according to claim 1, wherein the transmitted signal includes an ID identifying a communication element which is a final destination of the signal.

4. (previously presented): The communication apparatus according to claim 1, wherein the transmitted signal includes an ID identifying a communication element which is an originating source of transmission of the signal.

5. (currently amended): The communication apparatus according to claim 1, ~~having a plurality of distributed communication elements~~, wherein each of the communication elements has ~~such a coverage that~~ allows local communication with other neighboring communication elements, the local communication allowing sequential transmissions of a signal between the communication elements to convey the signal to a target communication element, said target communication element being disposed between the first and second conductive layers.

6. (previously presented): The communication apparatus according to claim 1, wherein the first conductive layer and the second conductive layer are flat layers.

7. (previously presented): The communication apparatus according to claim 1, wherein the first conductive layer and the second conductive layer are uniform conductive layers.

8. (currently amended): The communication apparatus according to claim 1, wherein the plurality of communication elements are classified into the first order to the Nth order ranks in ascending order of the communication management capabilities of the elements.

9. (previously presented): The communication apparatus according to claim 1, further comprising a sensor element including a circuit for measuring stress or temperature.

10. (currently amended): The communication apparatus comprising:
a first conductive layer;
a second conductive layer; and
a plurality of communication elements that are connected to the first conductive layer and the second conductive layer, wherein

a first communication element of the plurality of communication elements, initiating transmission to a second communication element of the plurality of communication elements, is operative to control a voltage between the first conductive layer and the second conductive layer, letting the second communication element to acknowledge a change in the voltage, propagated around the first communication element, as a signal,

wherein the second communication element is operative to monitor the signal from the first communication element and acknowledge the change in the voltage between the first conductive layer and the second conductive layer as the signal,

wherein the first communication element is assigned an ID identifying the element, and the transmitted signal includes an ID identifying the communication element which transmitted the signal, and

wherein the second communication element identifies the communication element which transmitted the signal by referring to the ID included in the signal, and

wherein the plurality of communication elements can be placed for communication without individual conductive wires.

11. (previously presented): The communication apparatus according to claim 10, wherein the first communication element is operative to generate as the signal, the change in the voltage between the first conductive layer and the second conductive layer propagated concentrically around the element.

12. (previously presented): The communication apparatus according to claim 10, wherein the transmitted signal includes an ID identifying a communication element which is a final destination of the signal.

13. (previously presented): The communication apparatus according to claim 10, wherein the transmitted signal includes an ID identifying a communication element which is an originating source of transmission of the signal.

14. (currently amended): The communication apparatus according to claim 10 ~~having a plurality of distributed communication elements~~, wherein each of the communication elements ~~has such a coverage that allows~~ local communications with other neighboring communication elements, the local communications allowing sequential transmissions of a signal between the communication elements to convey the signal to a target communication element, said target communication element being disposed between the first and second conductive layers.

15. (previously presented): The communication apparatus according to claim 10, wherein the first conductive layer and the second conductive layer are flat layers.

16. (previously presented): The communication apparatus according to claim 10, wherein the first conductive layer and the second conductive layer are uniform conductive layers.

17. (currently amended): The communication apparatus according to claim 10, wherein the plurality of communication elements are classified into ~~the~~ first order to ~~the~~ Nth order ranks in ascending order of communication management capabilities of the elements.

18. (previously presented): The communication apparatus according to claim 10, further comprising a sensor element including a circuit for measuring stress or temperature.

19. - 44. (canceled)

45. (new). The communication apparatus according to claim 8, wherein communication elements classified in the first order rank are positioned in close disposition with each other and communication elements classified in the Nth order rank are positioned in furthest disposition with each other and wherein communications of lower ranks utilize intervening communication elements of similar ranks and higher ranks to convey information to the recipient communication elements.

46. (new). The communication apparatus according to claim 17, wherein communication elements classified in the first order rank are positioned in close disposition with each other and communication elements classified in the Nth order rank are positioned in furthest disposition with each other and wherein communications of lower ranks utilize intervening communication elements of similar ranks and higher ranks to convey information to the recipient communication element.

47. (new): The communication apparatus according to claim 1, wherein the plural communication elements are laterally spaced from each other so as to not overlap each other in a direction of disposition of the first and second conductive layers.

48. (new): The communication apparatus of claim 1, wherein the plurality of communication elements are physically disposed between the first and second conductive layers.

49. (new): The communication apparatus according to claim 10, wherein the plural communication elements are laterally spaced from each other so as to not overlap each other in a direction of disposition of the first and second conductive layers.

50. (new): The communication apparatus of claim 10, wherein the plurality of communication elements are physically disposed between the first and second conductive layers.